[Document Name] Patent Application
[Reference Number] 9P53
[Filing Date] February 18, 1997
[Addressee] Commissioner of Patent Office
[International Patent Class] G06F 9/00
[Title of the Invention] COMPUTER
[Claim] 11
[Inventor]
[Address] c/o Sougoukenkyusho, Pioneer Electronic Corporation, 1-1, Fujimi 6-chome, Tsurugashima-shi, Saitama-ken, Japan
[Name] Sho MURAKOSHI
[Inventor]
[Address] c/o Sougoukenkyusho, Pioneer Electronic Corporation, 1-1, Fujimi 6-chome, Tokorozawa-shi, Saitama-ken, Japan
[Name] Hiroaki SHIBUKI
[Inventor]
[Address] c/o Sougoukenkyusho, Pioneer Electronic Corporation, 1-1, Fujimi 6-chome, Tsurugashima-shi, Saitama-ken, Japan
[Name] Hidemi USUBA
[Inventor]
[Address] c/o Sougoukenkyusho, Pioneer Electronic Corporation, 1-1, Fujimi 6-chome, Tokorozawa-shi, Saitama-ken, Japan
[Name] Shinsuke NISHIMURA
[Inventor]
[Address] c/o Sougoukenkyusho, Pioneer Electronic Corporation, 1-1, Fujimi 6-chome, Tokorozawa-shi, Saitama-ken, Japan
[Name] Keiichi NISHIMURA
[Patent Applicant]
[Identified Number] 000005016
[Name] Pioneer Electronic Corporation
[President] Kaneo ITO
[Agent]
[Identified Number] 100063565
[Patent Attorney]
[Name] Nobukiyo KOBASHI
[Indication of Charge]

【Book Number】 011659
【Sum of Money】 21000
【List of Exhibits】
【Document】 Specification 1
【Document】 Drawings 1
【Document】 Abstract 1
【Necessity of Proof】 Proof Needed

【Document Name】 Specification

【Title of the Invention】 Computer

【Scope of the Claimed Invention】

【Claim 1】

A computer comprising:

a reading section for reading identification information from a reproducing medium set in the computer; and

a control section for controlling displaying of related information corresponding to the read identification information.

【Claim 2】

The computer according to claim 1, characterized in that:

said computer stores addresses of said related information, and acquires the related information from a server which has the related information corresponding to the address, and further activates a program for displaying the related information.

【Claim 3】

The computer according to claim 2, characterized in that:

said computer has an inputting means, and makes the read identification information correspond with the address inputted by said inputting means and stores it therein.

【Claim 4】

The computer according to claim 2, characterized in that:

information in which said identification information is made to correspond with said address is stored in a second reproducing medium different from the reproducing medium having

said identification information, and said computer reads said corresponding information from said second reproducing medium and stores it therein.

[Claim 5]

A computer comprising:

a reading section for reading an address of related information in respect of a reproducing medium from the reproducing medium set in the computer; and

a control section for controlling displaying of the related information corresponding to the read address.

[Claim 6]

The computer according to claim 2, characterized in that:

said computer transmits said read identification information to the other server being capable of retrieving the address of the related information corresponding to said identification information, and acquires a corresponding retrieval result from said other server and stores it therein.

[Claim 7]

The computer according to claim 2, characterized in that:

said computer has retrieving means for retrieving the address of the related information corresponding to said identification information.

[Claim 8]

The computer according to claim 1, characterized in that:

said related information is stored in a third reproducing

medium different from said set reproducing medium, and said computer reads said related information from said third reproducing medium and stores it therein.

【Claim 9】

The computer according to claim 1, characterized in that:

said computer acquires the related information corresponding to said identification information from the other server and stores it therein.

【Claim 10】

The computer according to claim 1, characterized in that:

said reproducing medium stores an audio data, and said related information at least includes either one of a title name of said reproducing medium, music name, a picture or words of a song used in a jacket, or a name of producer of audio data.

【Claim 11】

The computer according to claim 1, characterized in that:

said reproducing medium is a CD (compact disc), and said identification information includes at least TOC information of said reproducing medium.

【Detailed Description of the Invention】

【0001】

【Technical Field of the Invention】

The present invention relates to a computer, and more particularly to a computer having a function for displaying related information with regard to a reproducing medium as well

as reproducing the medium.

[0002]

[Prior Art]

Recently, various types of information reproducing media using CD (compact disc) media come into the market.

The CD was generally used as a CD audio disc at first. Nowadays, a CD-ROM also is popular mainly for a computer. The CD-ROM includes the photo-CD, enhanced music CD (hereinafter called CD-extra) and video-CD. Particularly, the CD-extra and photo-CD are also included in a multi-session CD having a plurality of lead-in areas.

Furthermore, recently, the function of the personal computer has been remarkably improved to have reproducing programs for reproducing not only the photo-CD and video-CD, but also the CD-Audio so as to reproduce the music CD.

[0003]

On the other hand, the personal computer has come to be communicated with external equipments through networks for easily exchanging information each other.

For example, in the Internet, a user activates a browser program and inputs an address of a server which has desired information so as to freely access the server.

There is also a server having a function to retrieve the address by a keyword. Therefore, even if a desired address is not known directly, if the user accesses the server having the

retrieval function, the desired address can be obtained indirectly by the retrieving function of the server.

[0004]

For a high speed process, it is possible to activate a plurality of programs in time sharing and operate a plurality of functions in parallel.

For example, when a reproducing program of a music CD and a browser program are activated in parallel, the music CD can be played, while related information of the music CD can be displayed on a display.

[0005]

However, in this case, first the user must presume one of keywords of the related information such as a name of singer of the music CD to be played, operate to activate the browser program, and input the presumed keyword, thereby obtaining an address of the related information from the server having the retrieval function. Thereafter, the user acquires the related information through identifying the address. Thus, a problem that a complicated operation is needed has arised.

[0006]

[Problems to be Solved by the Invention]

The present invention is made to solve such a problem. An object of the present invention is to provide a computer where related information with regard to a reproducing medium is automatically indicated when the reproducing medium is set in

the computer.

[0007]

[Means for Solving the Problem]

According to the present invention, there is provided a computer, comprising reading means for reading identification information from a medium set in the computer, and means for controlling displaying of related information in accordance with the identification information read from the medium.

Also, the computer of the present invention has reading means for reading addresses of related information of a reproducing medium from the set reproducing medium, and means for controlling displaying of related information in accordance with the address read from the medium.

[0008]

[Preferred Embodiment of the Invention]

Hereinafter, the embodiments of the present invention will be explained in detail referring to the attached drawings.

Fig. 1 shows a schematic view of a computer having functions for automatically activating a reproducing program of a CD (compact disc) and automatically calling related information of the CD, which is an embodiment of the present invention.

[0009]

In Fig. 1, the computer 1 comprises a plurality of programs such as a controller 2 which has at least an automatically

activating program for automatically activating a set reproducing program of CD, a selection information determining program for determining a priority of reproducing program of a CD-extra and an automatically calling program of the related information, a reproducing program 3 for a CD-Audio, a reproducing program 4 for a photo-CD, and a reproducing program 5 for a video-CD.

[0010]

The computer 1 is further provided with a RAM 6 for storing the selection information and a CD-ROM reproducing program other than the above mentioned one, and a reading section 7 for reading information from the set CD 8. The reading section 7 includes a hardware such as a pickup, and a driver for driving it.

Furthermore, the computer 1 has an input unit 9 and a display 10 for inputting and displaying various information, respectively, and a database 18 for retrieving.

Moreover, these elements are connected to each other through a bus line 11. The bus line 11 is further connected to an external communication channel 12 which is connected to servers 13, 14, 15 and 18.

The above mentioned is a schematic structure of the computer 1.

[0011]

First, an automatically activating function of the

reproducing program will be described with reference to the flowchart of Fig. 2. Such a function is operated by the automatically activating program of the controller 2.

[0012]

At a step S1, when the CD 8 is set in the CD player, the controller 2 controls the reading section 7 to drive the CD 8 and read information (TOC information) recorded on a lead-in area of a first session (innermost session).

Thus, the driver of the reading section 7 is operated to drive the pickup and motor to read and output the information on the lead-in area.

[0013]

At a step S2, the information such as control bit, address bit, minute, second, and frame number is obtained from the TOC information.

The control bit is used to identify whether the session is the one of a CD-Audio or the one of a CD-ROM.

The address bit is used to identify whether the CD 8 has a single-session (namely, only a first session is provided) or a multi-session such as CD-extra.

[0014]

At a step S3, the value of address bit is detected, and it is determined whether the CD 8 has the single-session or the multi-session by the address bit.

If it is determined that the CD 8 has the multi-session,

the reading section 7 is controlled to read a lead-in area of a second session of the CD since a start time of the next session is obtained by the TOC information read in step S2 (step S4).

Hereinafter, such steps S1, S2 and S3 are carried out to the last session.

[0015]

After obtaining the information of each session, the type of CD 8 is determined in accordance with the following steps after step S5, employing the information.

[0016]

At the step S5, it is determined whether the CD 8 is the CD-Audio or the CD-ROM by the control bit read in the first session.

If the first session of the CD 8 is determined to be the CD-Audio at step S5, it is determined whether the CD is the CD-Audio or the CD-extra at step S6 since the set CD is either of them.

[0017]

At step S6, it is determined whether the set CD is the single-session or the multi-session by the address bit read in the first session.

If single-session, the set CD is the CD-Audio. Also, if multi-session, it is the CD-extra. Then, the corresponding reproducing programs are activated at step S7, S8, respectively.

[0018]

A previously selected music (for example, first music) in the CD-audio is reproduced in the reproducing program of the CD-Audio. In the reproducing of the CD-extra, either reproducing program of audio-session or data-session is activated, which will be described hereinafter.

[0019]

On the other hand, when the CD-ROM is determined at the step S5, the program goes to a step S9. At the step S9, it is determined whether the CD-ROM has the single-session or the multi-session by the address bit in the same manner as the step S6.

[0020]

If the CD has the multi-session, it has a possibility of the photo-CD. Therefore, at a step S10, the reading section 7 is operated to read a VTOC (Volume Table of Contents) in an LSN 16 (physical address 00:02:16) of the last session, and obtains a directory name under a root directory (step S12).

[0021]

If the set CD has the single-session, it has a possibility of the video-CD. Thus, at a step S11, the reading section is operated to read the VTOC in the first session, and obtains the directory name under the root directory (step S12).

[0022]

After reading the VTOC, it is determined whether a specified directory name is in the obtained directory names

(step S13).

In more detail, since PVD (Primary Volume Descriptor)forming the VTOC has a pointer of the root directory, information of the root directory is obtained and then it is retrieved whether the directory such as PHOTO-CD or VCD exists under the information.

[0023]

That is, if the multi-session is identified at the step S9, it is further retrieved whether the directory name of photo-CD exists, wherein it is determined whether the set CD is photo-CD or the other CD-ROM. Also, if the single-session is identified at the step S9, it is further retrieved whether the directory name of VCD exists, wherein it is determined whether the set CD is video-CD or the other CD-ROM.

[0024]

As a result, if the set CD is identified the video-CD, the reproducing program of the corresponding video-CD is controlled to be activated at a step S14. Also, if the set CD is identified the photo-CD, the reproducing program of the corresponding photo-CD is controlled to be activated at a step S15. Further, if it is identified the other CD, the reproducing program of the set CD-ROM is stored into the RAM 6, and then to be activated (step S16). In the case that there are a plurality of programs which can be executed, either program of them is activated as a reproducing program according to a user's selection and a

predetermined priority thereof.

These are the details of the automatically activating program, such functions of which are added in the system to improve the convenience of use.

[0025]

The operation of the reproducing program for the CD-extra at the step S8 will be described hereinafter.

In order that the CD-extra can be reproduced by an ordinary CD player and the CD-extra can be used in a CD-ROM drive, an audio track of the CD-extra is provided in the first session, and a data track thereof is provided in the second session.

Heretofore, when the CD-ROM drive detects a multi-session CD, the last session (namely, data track) is read first. Since the CD player for music can not detect the multi-session CD, the first session (namely, audio track) is reproduced first.

[0026]

However, if it is possible to reproduce both of the music CD and the CD-ROM, it is more convenient for the user if one of the sessions of the CD-extra can be selected as priority reproduction.

[0027]

Therefore, for the activation of the CD-extra (step S8 of Fig. 2), steps S31 and S32 are added as shown in Fig. 3.

Hereinafter, Fig. 3 will be explained.

[0028]

When the multi-session (namely, CD-extra) is identified at the step S6 of Fig. 2, stored selection information is read at a step S31. The selection information instructs which session should be reproduced first. The instruction is stored in the RAM 6. If the selection information is "1", for example, priority reproduction of the audio session is instructed. If the selection information is "0", alternatively, priority reproduction of the data session is instructed.

[0029]

At a step S32,the selection information is identified, wherein it is determined whether the selection information is the priority reproduction of the audio session or the data session. If audio session, the CD-audio reproducing program is activated at the step S7. If data session, the reproducing program stored in the disc is stored in the RAM and activated (step S16).

Thus, it becomes more convenient to reproduce the CD-extra according to adding these functions.

[0030]

Next, a deciding operation of the read selection information in Fig. 3 will be explained.

Fig. 4 shows a flow chart for deciding the selection information of Fig. 3. The deciding program is included in the controller 2, and is periodically operated.

First, at a step S41, it is determined whether the

selection is requested or not (for example, a selection request key on the display is clicked).

If not, the program is terminated. If yes, the display 10 is operated to display a selection mode (step S42).

[0031]

At a step S43, it is determined whether priority session is input by the user or not. If no, the program goes ahead until the selection mode is canceled by a user (step S44). If yes, the program goes to a step S45 where the select information stored in the RAM 6 is updated based on the input, and the deciding operation is terminated.

Thus, the user can select the priority reproduction of the session of the CD-extra at will through adding the above mentioned functions.

[0032]

Moreover, the selection operation of the reproducing session was explained with an example of the CD-extra in the above-mentioned embodiments. Other than the CD-extra, however, a CD having multi-session can also be used in the embodiment.

[0033]

Next, an automatically calling function of the related information will be explained.

Such a function is operated mainly by the automatically calling program of the controller 2, a flow chart of which is shown in Fig. 5. The operation can be performed in parallel with

the automatically activating program of CD shown in Fig. 2.

[0034]

At a step S51, it is determined whether the CD 8 is set or not. Namely, when the CD 8 is mounted on a disc tray of the reading section 7, the reading section 7 produces a detecting signal which is periodically detected by the controller 2.

[0035]

If no, the program is terminated. If yes, the program goes to a step S52, and an identification information of the set disc is obtained.

[0036]

Here, the case having the identification information such as the TOC information and the type of CD will be explained. In the TOC information, data such as, at least, minute, second and frame number is used for identifying the CD.

Information showing the contents of the disc is not always necessary, but it is used for retrieving data at a high speed in the present embodiment. Since a concrete method for identifying the contents of disc is explained in the automatically activating function of the reproducing program in detail, it is omitted here.

[0037]

At a step S53, a key word corresponding to the identification information is retrieved. In more detail, data of the retrieval table stored in the database 18 is retrieved for

retrieving a keyword (for example, name of artist or title, if the CD 8 is the music CD) corresponding to the identification information.

Fig. 6 shows an example of the retrieval table. Here the table is made in accordance with the type of CD, thereby reducing work-load of the retrieval.

Furthermore, it is not necessary to correspond one piece of identification information to one keyword. For example, one identification information (identification information 1) may correspond to a plurality of keywords (keywords 1, 2), and reversely, a plurality pieces of identification information 2, 3 may correspond to the same keyword 3.

[0038]

Such a database 18 can be made by the user by manually inputting data, or obtained by other reproducing medium (for example, a CD which stores a database).

Furthermore, further information on keyword can be also stored in the set CD itself. For example, a CD text of character information stored in a sub code can be used as a keyword. In this case, the retrieving process of the keyword at the step S53 becomes unnecessary.

Furthermore, the database as shown in Fig. 6 may be formed through accessing the other server 13 having a keyword retrieving section 16 for retrieving a keyword from the identification information, thereby obtaining keywords which are

stored in order corresponding to the identification information.

[0039]

If a keyword is obtained by the retrieval (step S54: yes), an address is retrieved at a step 55. This address, for example, is an address of a homepage as used in an Internet.

Fig.7 shows a retrieval table. As well as the table shown in Fig.6, it is not always necessary to correspond one keyword to one address. For example, one keyword (for example, keyword 1) may correspond to a plurality of addresses (for example, addresses 1, 2), and reversely a plurality of keywords (for example, keywords 2, 3) may correspond to one address (for example, address 3).

[0040]

As aforementioned, the database can also be made by the user by manually inputting data, or obtained by other reproducing medium (for example, disc which stores a database).

Also, information on address can be stored in the set CD itself. In this case, the retrievals of keyword and address are unnecessary.

Furthermore, the database as shown in Fig. 7 may be formed through accessing the other server 15 having an address retrieving section 17 for retrieving an address from the identification information, thereby obtaining addresses which are stored in order corresponding to the keywords.

[0041]

If the corresponding address is obtained (step S56:Yes), the related information corresponding to the obtained address is acquired and displayed (step S61).

The related information such as a home page is obtained by accessing the server 14 for the retrieved address through the channel 12.

Furthermore, it is possible to obtain the related information of the corresponding address from a reproducing medium (for example, CD-ROM) which stores the related information without using the network.

[0042]

As the related information of the CD, for example of the music CD, title of a music, list of songs, picture used on a jacket, words of song, home page of singer, and names of singer, writer, composer and player are stored.

[0043]

If the corresponding address is not obtained (step S56:No), the display 10 is operated to display a request to the user for inputting an additional keyword (step S57) since this condition can not lead the related information. Fig. 8 shows an example thereof.

And, an address is retrieved again after returning to the step S55 based on a data of additional keyword input by the input unit 9. If an instruction of cancel is input by a user, the display of the related information is stopped.

[0044]

On the other hand, if the keyword is not obtained at a step S53 (step S54:No), an external server 13 having a database larger than the database of the computer 1, and the keyword retrieving section 16 for retrieving a keyword from the identification information is accessed so as to transmit the identification information (step S59). The external server 13 retrieves a corresponding keyword which is transmitted to the computer 1.

[0045]

If the corresponding keyword is obtained (step S60:Yes), the corresponding address is retrieved at a step S55. If the corresponding keyword is not obtained (step S60:No), a requirement of addition keywords to a user is displayed (step S57).

[0046]

This is an automatically calling operation of the related information, and it becomes possible to automatically display the related information through adding such a function.

[0047]

In the embodiment, although the address is retrieved by the database of the computer 1 in the above mentioned embodiment, the database in the computer 1 is not always necessary.

For example, the address may be retrieved by the other server 15 having the address retrieving section 17 for

retrieving the address corresponding to the keyword at a step S56. In this case, the computer 1 transmits the keyword to the other server 15 for requesting the retrieval of the address.

[0048]

If the keyword is retrieved by the database in the computer 1 at steps S53, S54, and 59, and if the address can not be obtained, the retrieval of the address is requested to the other server 15 having the address retrieving section 17 for obtaining the corresponding address.

[0049]

Furthermore, it is possible to retrieve the keyword only by the server 13 having the keyword retrieving section for retrieving the keyword corresponding to the identification information 16 without using the database 18. Alternatively, all of the keyword and the address can also be retrieved by the servers 13 and 15. In the former case, the computer 1 transmits the identification information to the other server 13 for requesting the retrieval of keyword. In the latter case, the computer 1 transmits the keyword to the other server 15 for requesting the retrieval of address.

[0050]

In the present embodiment, the keyword is retrieved by the identification information, and then the address is retrieved by the keyword. Thus, the general retrieval functions of the servers 13 and 15 can be easily used.

Therefore, if the other server having a retrieving section also for directly retrieving the address by the identification information in addition to the general retrieval becomes a general one, the address can be directly retrieved without retrieving the keyword. This embodiment is shown in Fig. 9.

[0051]

Such a function is operated in the automatically calling function of mainly the controller 2. The operation can be performed in parallel with the automatically activating program of CD shown in Fig.2

[0052]

At a step S91, first, it is determined whether the disc is set or not, in the same manner as the step S51.

[0053]

If no, the program is terminated. If yes, identification information of the set disc is obtained at a step S92, in the same manner as the step S51.

[0054]

Next, at a step S93, the address corresponding to the identification information is retrieved. In more detail, data of the retrieval table 18a stored in the database 18 is retrieved for retrieving a corresponding address (for example, an address of the home page of the singer, if the identification information is for the music CD).

Fig. 10 shows a retrieval table. As aforementioned, the

table is made in accordance with the type of CD, thereby reducing work load of retrieval.

Furthermore, it is not necessary to correspond one piece of identification information to one address. For example, one piece of identification information (for example, identification information 1) may correspond to a plurality of addresses (for example, addresses 1, 2). Reversely, a plurality pieces of identification information (for example, identification informations 2, 3) may correspond to one address (for example, address 3).

[0055]

As aforementioned, such a database can be made by the user or obtained by other reproducing medium (for example, disc which stores a database).

It is also possible to further store the information on address in the set reproducing medium itself. In this case, the retrieving process of address at the step S93 becomes unnecessary.

The other server 18 having a retrieving section 19 for retrieving address from the identification information may be accessed, thereby obtaining addresses which are stored in order corresponding to the identification information. Thus, the database shown in Fig. 10 may be made.

[0056]

If the address is obtained by the retrieval (step S94:Yes),

the related information of the corresponding address is acquired and displayed (step S99).

In order to display the related information such as a home page, the browser program as one part of the displaying program is activated to access the server 14 of the retrieved address through the channel 12. The obtained information is reformed to be displayed on the display 10.

Furthermore, without using a network, it is also possible to obtain the related information corresponding to the address as retrieved by the reproducing medium (for example, the CD-ROM which stores the related information) which stores the related information.

[0057]

If the corresponding address is not obtained (step S94:No), the external server 18 having larger database than the database of the computer 1 and the retrieving section 19 for retrieving the address from the identification information is accessed so as to transmit the identification information (step S95). The external server 18 retrieves the corresponding address which is transmitted to the computer 1.

[0058]

If the corresponding address is obtained (step S96:Yes), the corresponding related information is displayed at the step S99.

If not (step S96:No), the display 10 is operated to display

a request to the user for inputting an additional keyword or address (step S97).

[0059]

If the keyword is input through the input unit 9, the program is returned to the step S93 in order to retrieve the address. If the address is input through the input unit 9, the related information is displayed at the step S99.

[0060]

This is the automatically calling operation of the related information. Thus, the related Information can be automatically displayed according to adding such a function.

Although the retrieval of address is carried out by the computer 1 also in the present embodiment, it is possible to retrieve the address only by the server 18 having the retrieving section 19.

[0061]

Moreover, although the present invention was explained by the CD as an example, in place of the CD, other reproducing medium such as a DVD having information corresponding to TOC may be used.

[0062]

[Effect of the Invention]

In accordance with the present invention, only if the reproducing medium is set, the related information thereof is automatically obtained. Consequently, it becomes possible to

increase the operability of the computer.

【Brief Description of Drawings】

Fig. 1 is a schematic block diagram showing a computer according to the present invention;

Fig. 2 is a flowchart showing an operation for automatically activating a reproducing program which a reproducing controller operates;

Fig. 3 is a flowchart showing an operation for selecting a session of a CD-extra which a reproducing controller operates;

Fig. 4 is a flowchart showing an operation for determining a priority of a session of a CD-extra which a reproducing controller operates;

Fig. 5 is a flowchart showing an operation for automatically calling of related information which a reproducing controller operates;

Fig. 6 is a schematic diagram showing one example of a retrieval table;

Fig. 7 is a schematic diagram showing another retrieval table;

Fig. 8 is a display example for requesting an input of keyword;

Fig. 9 is a flowchart showing another operation for automatically calling of related information which a reproducing controller operates; and

Fig. 10 is a schematic diagram showing a further retrieval

table.

【Explanation of Reference Numeral】

1 ..... computer

2 ..... controller

3 ..... reproducing program for CD-audio

4 ..... reproducing program for photo-CD

5 ..... reproducing program for video-CD

6 ..... RAM

7 ..... reading section

8 ..... CD

9 ..... input unit

10 ..... display

11 ..... bus-line

12 ..... communication channel

13 , 14, 15, 18 ..... server

16, 17, 19 ..... retrieving section

【Document】 Abstract

【Abstract】

【Purpose】

It is to provide a computer which has a function of automatically acquiring related information related to a set reproducing medium through a network or other reproducing medium.

【Solving Means】

The computer has a reading section for reading information as stored in the set reproducing medium, and a controller for determining an address, in which related information is located, based on the read information, and displaying the related information.

【Selected Drawing】 Fig. 9

FIG.1

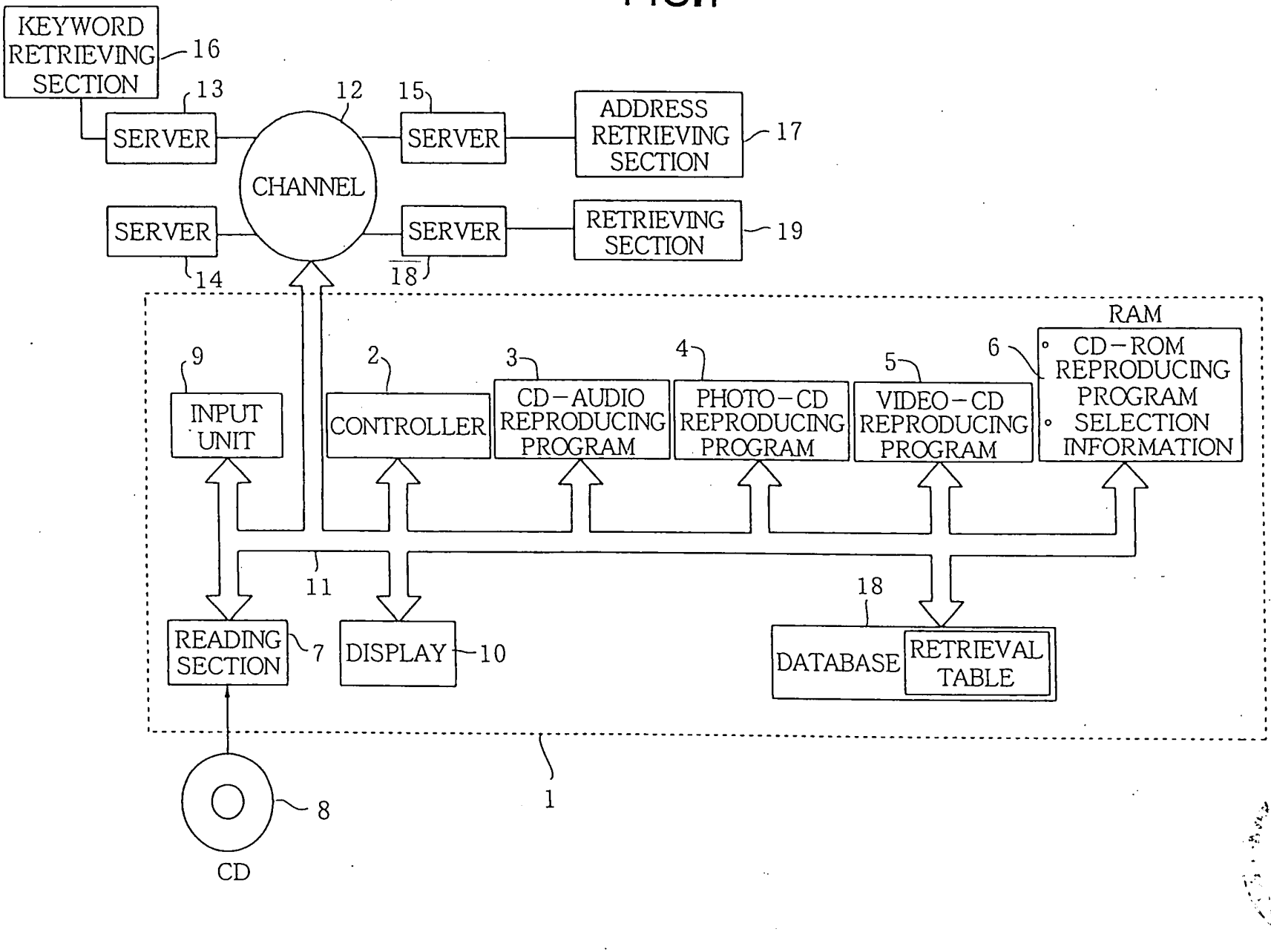

KEYWORD RETRIEVING SECTION
16
13
12
15
SERVER
CHANNEL
SERVER
ADDRESS RETRIEVING SECTION
17
SERVER
SERVER
RETRIEVING SECTION
19
14
18
RAM
9
2
3
4
5
6
INPUT UNIT
CONTROLLER
CD-AUDIO REPRODUCING PROGRAM
PHOTO-CD REPRODUCING PROGRAM
VIDEO-CD REPRODUCING PROGRAM
CD-ROM REPRODUCING PROGRAM
SELECTION INFORMATION
11
18
READING SECTION
7
DISPLAY
10
DATABASE
RETRIEVAL TABLE
1
8
CD

FIG.2

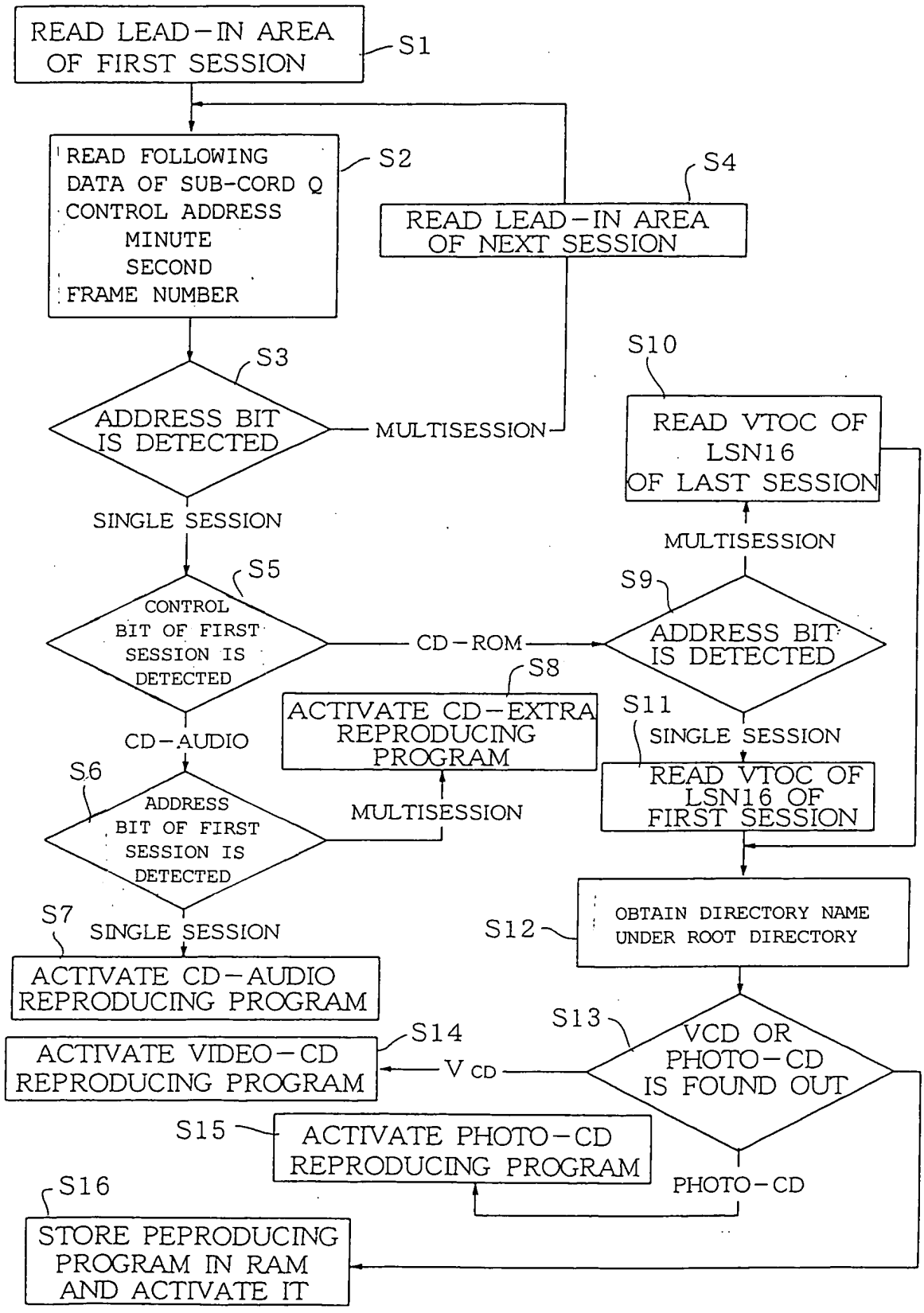

READ LEAD-IN AREA OF FIRST SESSION
S1
READ FOLLOWING DATA OF SUB-CORD Q
CONTROL ADDRESS
MINUTE
SECOND
FRAME NUMBER
S2
S4
READ LEAD-IN AREA OF NEXT SESSION
S3
ADDRESS BIT IS DETECTED
MULTISESSION
SINGLE SESSION
S10
READ VTOC OF LSN16 OF LAST SESSION
MULTISESSION
S5
CONTROL BIT OF FIRST SESSION IS DETECTED
CD-ROM
S9
ADDRESS BIT IS DETECTED
S8
ACTIVATE CD-EXTRA REPRODUCING PROGRAM
S11
SINGLE SESSION
READ VTOC OF LSN16 OF FIRST SESSION
CD-AUDIO
S6
ADDRESS BIT OF FIRST SESSION IS DETECTED
MULTISESSION
S7
SINGLE SESSION
ACTIVATE CD-AUDIO REPRODUCING PROGRAM
S12
OBTAIN DIRECTORY NAME UNDER ROOT DIRECTORY
S13
VCD OR PHOTO-CD IS FOUND OUT
S14
ACTIVATE VIDEO-CD REPRODUCING PROGRAM
V CD
S15
ACTIVATE PHOTO-CD REPRODUCING PROGRAM
PHOTO-CD
S16
STORE PEPRODUCING PROGRAM IN RAM AND ACTIVATE IT

FIG.3

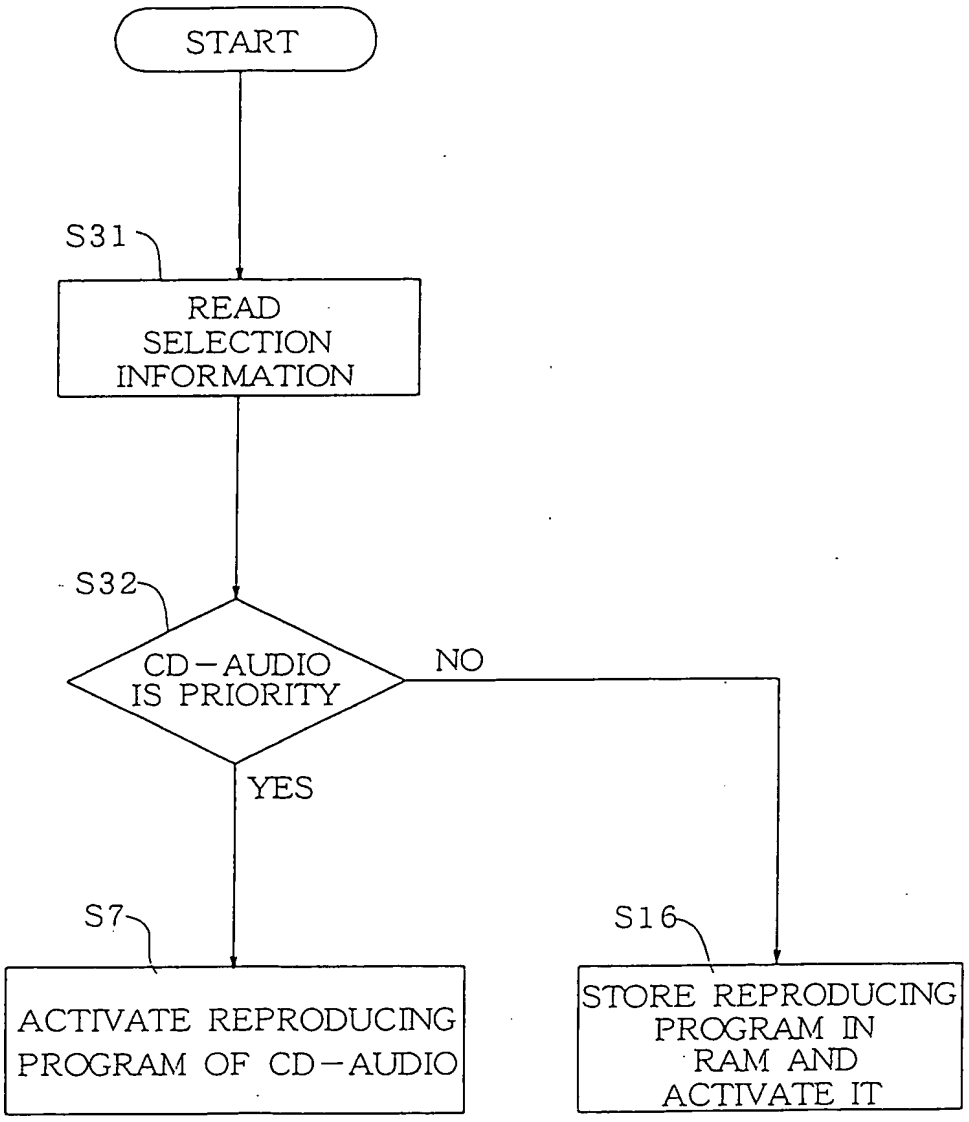

START
S31
READ SELECTION INFORMATION
S32
CD-AUDIO IS PRIORITY
NO
YES
S7
ACTIVATE REPRODUCING PROGRAM OF CD-AUDIO
S16
STORE REPRODUCING PROGRAM IN RAM AND ACTIVATE IT

FIG.4

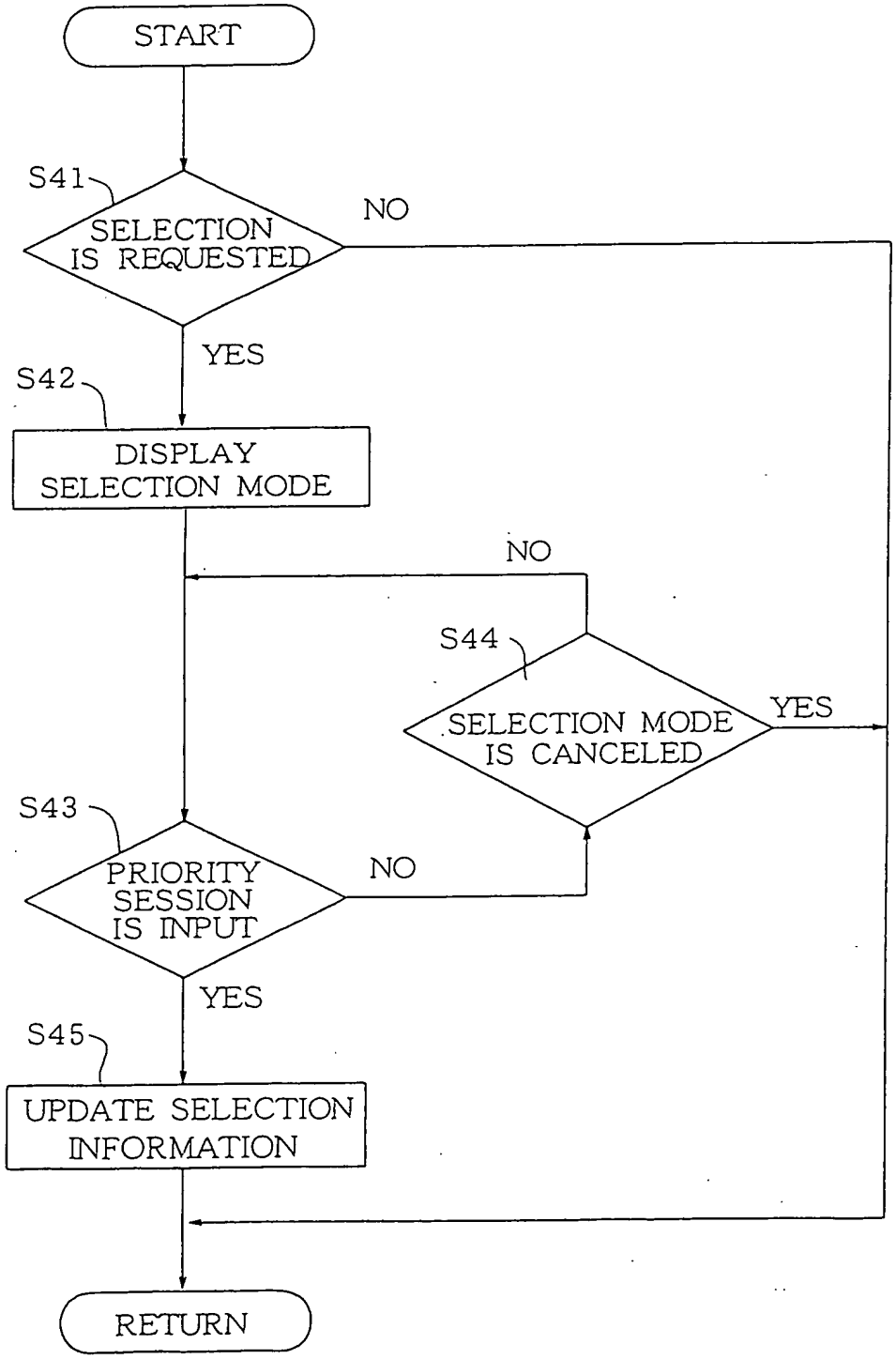

START
S41
SELECTION IS REQUESTED
NO
YES
S42
DISPLAY SELECTION MODE
NO
S44
SELECTION MODE IS CANCELED
YES
S43
PRIORITY SESSION IS INPUT
NO
YES
S45
UPDATE SELECTION INFORMATION
RETURN

FIG.5

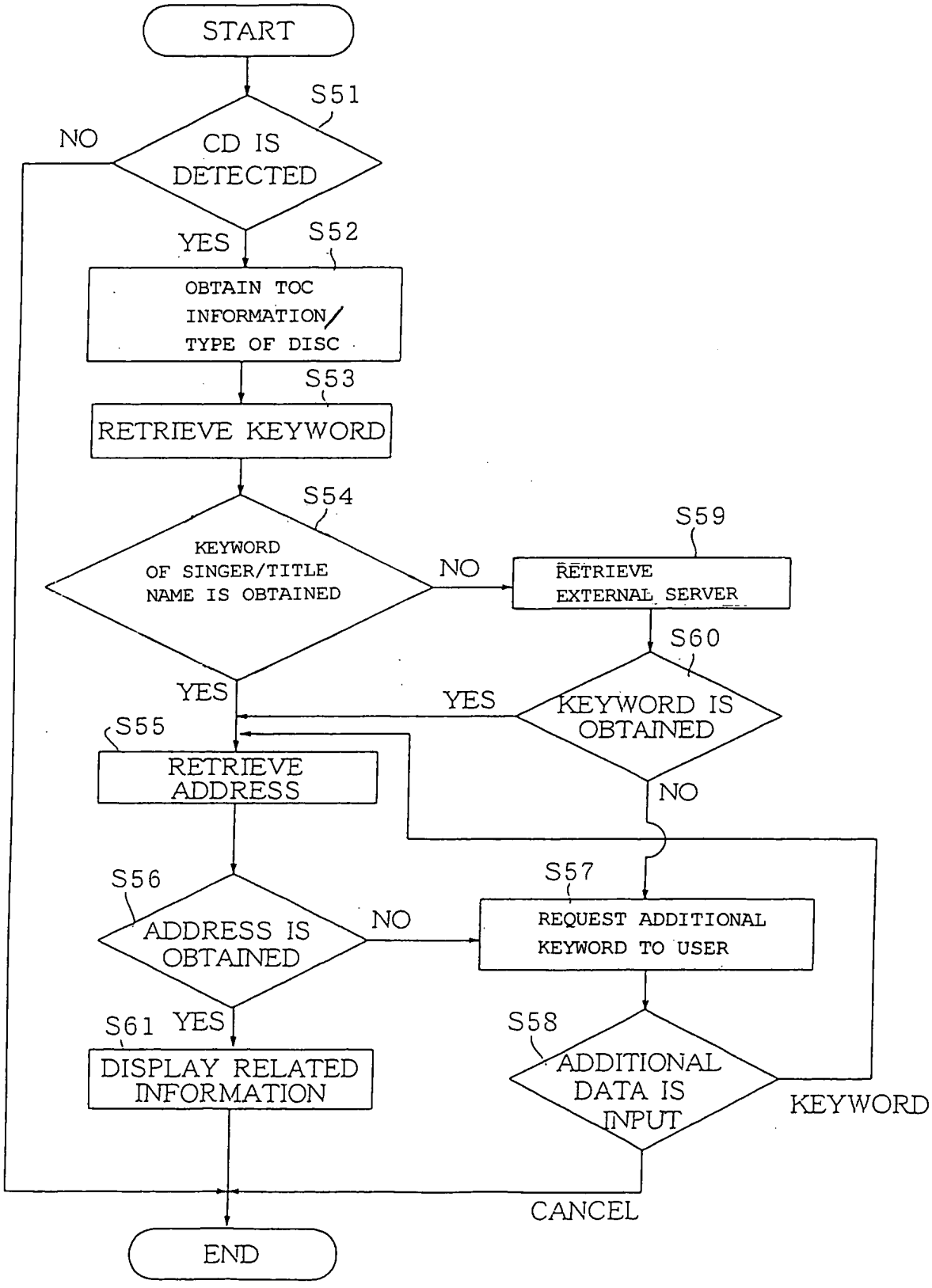

START
S51
CD IS DETECTED
NO
YES
S52
OBTAIN TOC INFORMATION/ TYPE OF DISC
S53
RETRIEVE KEYWORD
S54
KEYWORD OF SINGER/TITLE NAME IS OBTAINED
NO
S59
RETRIEVE EXTERNAL SERVER
S60
KEYWORD IS OBTAINED
YES
YES
NO
S55
RETRIEVE ADDRESS
S56
ADDRESS IS OBTAINED
NO
S57
REQUEST ADDITIONAL KEYWORD TO USER
S61
YES
DISPLAY RELATED INFORMATION
S58
ADDITIONAL DATA IS INPUT
KEYWORD
CANCEL
END

FIG.6

RETRIEVAL TABLE

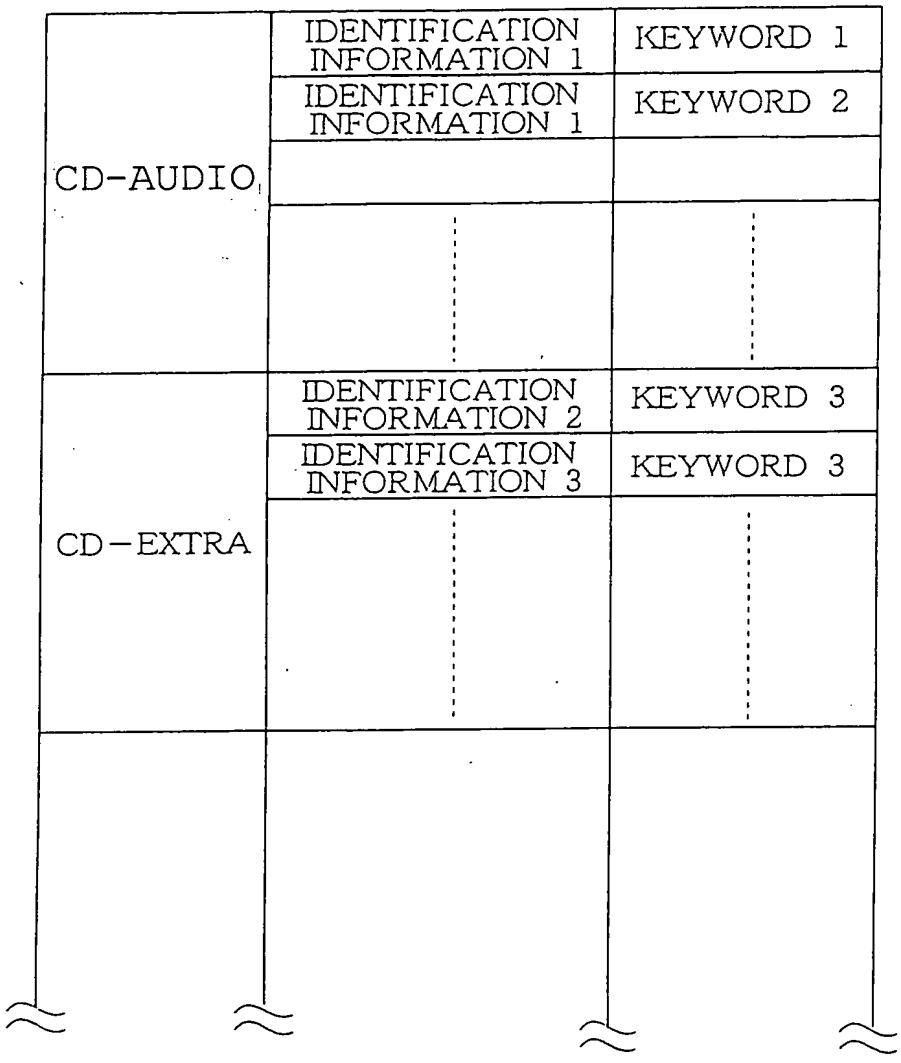
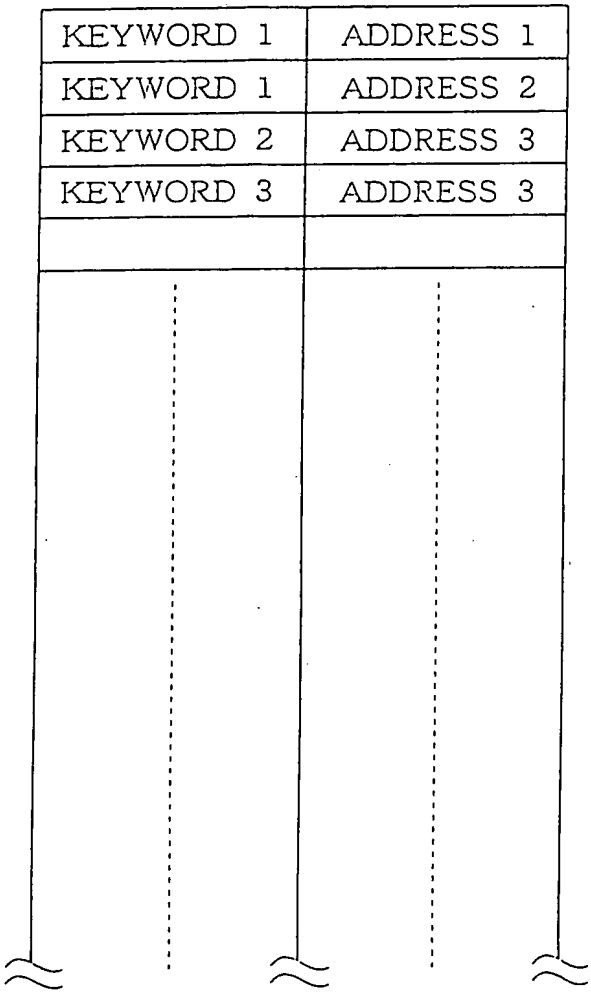


FIG.7

RETRIEVAL TABLE



KEYWORD 1	ADDRESS 1
KEYWORD 1	ADDRESS 2
KEYWORD 2	ADDRESS 3
KEYWORD 3	ADDRESS 3

FIG.8

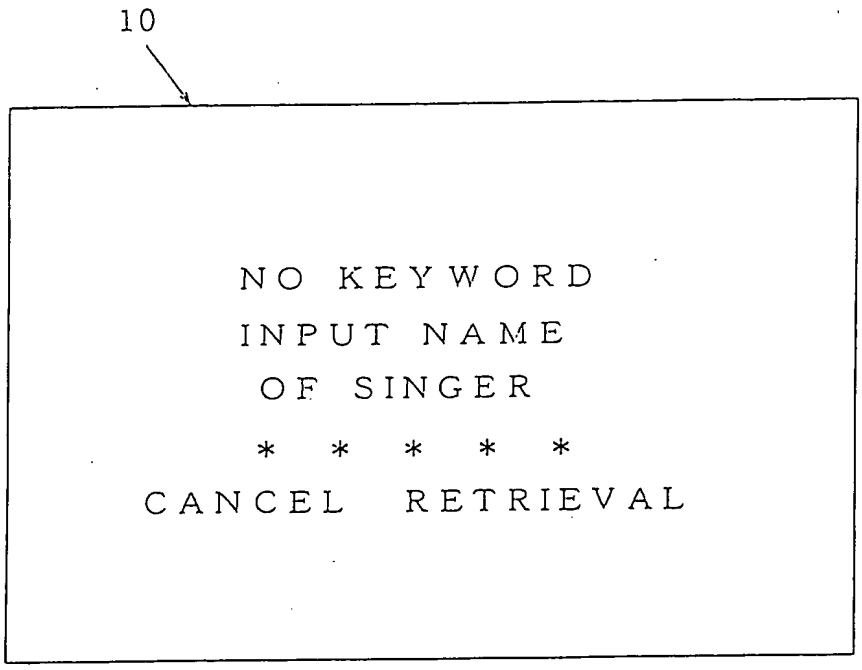


FIG.9

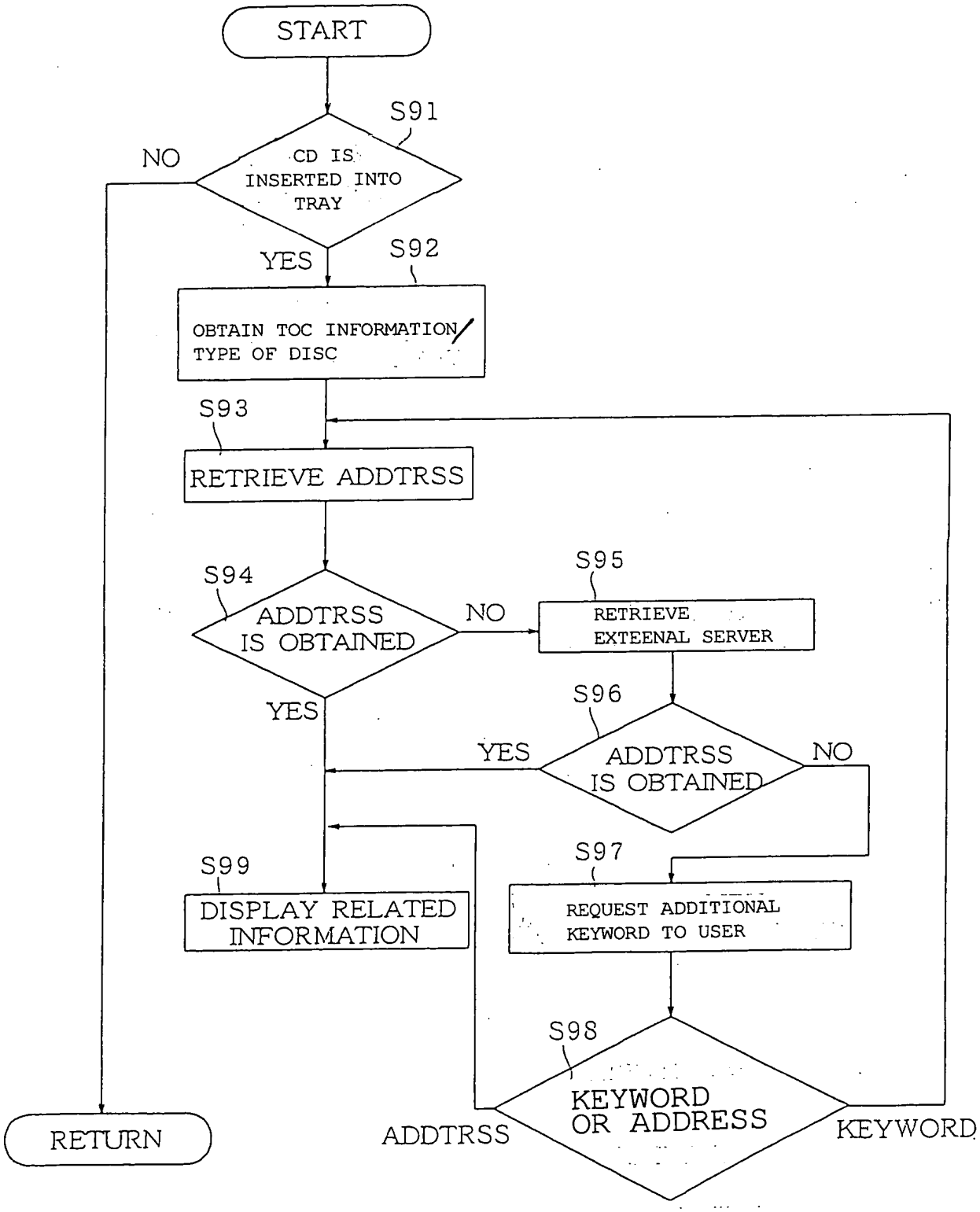
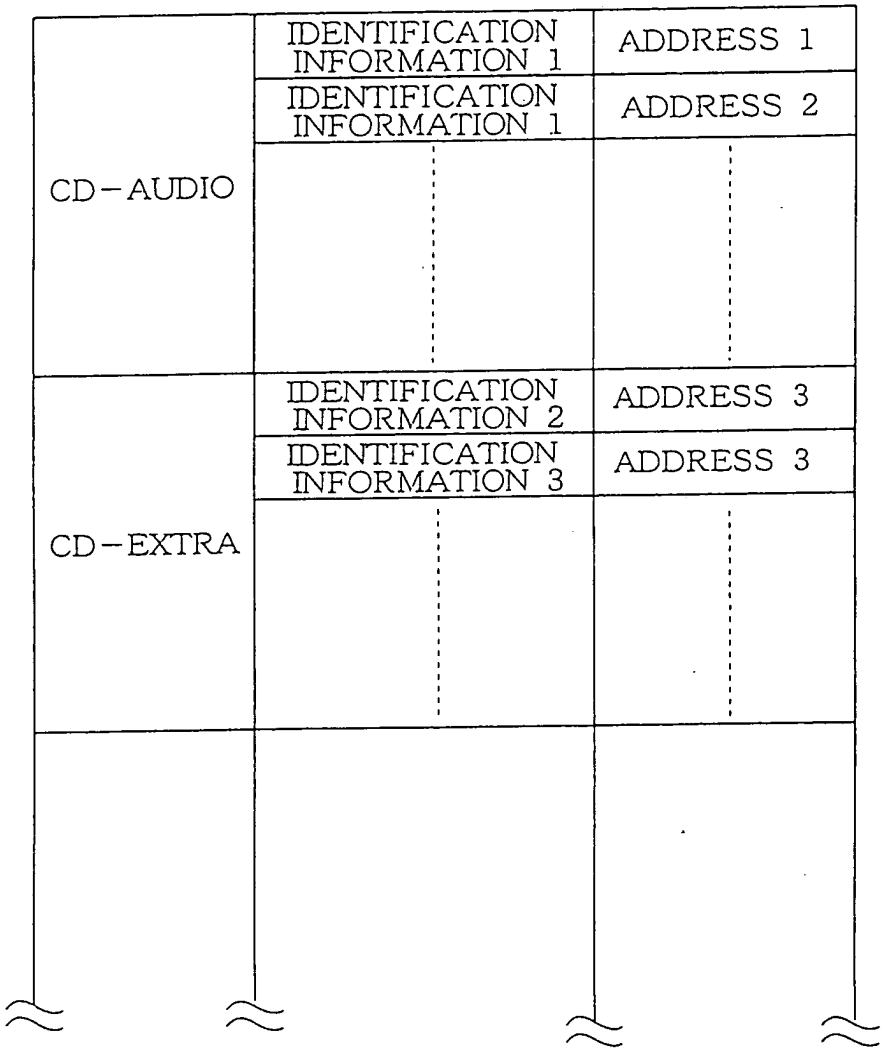

START
S91
CD IS INSERTED INTO TRAY
NO
YES
S92
OBTAIN TOC INFORMATION TYPE OF DISC
S93
RETRIEVE ADDTRSS
S94
ADDTRSS IS OBTAINED
NO
S95
RETRIEVE EXTEENAL SERVER
YES
S96
ADDTRSS IS OBTAINED
YES
NO
S97
REQUEST ADDITIONAL KEYWORD TO USER
S99
DISPLAY RELATED INFORMATION
S98
KEYWORD OR ADDRESS
ADDTRSS
KEYWORD
RETURN

FIG.10


CD-AUDIO
IDENTIFICATION INFORMATION 1
ADDRESS 1
IDENTIFICATION INFORMATION 1
ADDRESS 2
CD-EXTRA
IDENTIFICATION INFORMATION 2
ADDRESS 3
IDENTIFICATION INFORMATION 3
ADDRESS 3